

IN THE CLAIMS

1. (original) A method of screening for biologically active agents that modulate a cancer associated phosphatase function, the method comprising:

combining a candidate biologically active agent with any one of:

(a) a polypeptide encoded by SEQ ID NOS:1, 3, 5, 7, 9 or 11; or having the amino acid sequence set forth in SEQ ID NOS:2, 4, 6, 8, 10 or 12;

(b) a cell comprising a nucleic acid encoding a polypeptide encoded by SEQ ID NOS: 1, 3, 5, 7, 9 or 11; or

(c) a non-human transgenic animal model for cancer associated phosphatase gene function comprising one of: (i) a knockout of a gene corresponding to SEQ ID NOS: 1, 3, 5, 7, 9 or 11; (ii) an exogenous and stably transmitted mammalian gene sequence comprising polypeptide encoded by SEQ ID NOS: 1, 3, 5, 7, 9 or 11; and determining the effect of said agent on phosphatase function.

2. (original) A method for the diagnosis of cancer, the method comprising:

determining the upregulation of expression in SEQ ID NOS: 1, 3, 5, 7, 9 or 11 in said cancer.

3 – 6 (canceled)

7. (original) A method for inhibiting the growth of a cancer cell, the method comprising:

downregulating activity of the polypeptide encoded by SEQ ID NOS: 1, 3, 5, 7, 9 or 11; or having the amino acid sequence set forth in SEQ ID NOS:2, 4, 6, 8, 10 or 12; in said cancer cell.

8 – 11. (canceled)

12. (currently amended) A method of screening for targets of a cancer associated phosphatase, wherein said targets are associated with signal transduction in cancer cells, the method comprising:

comparing the pattern of gene expression or protein phosphorylation in a normal cell, and in a tumor cell characterized by up-regulation of SEQ ID NOS: 1, 3, 5, 7, 9 or 11.

13-14. (canceled)

15. (currently amended) The method according to claim 12 ~~or claim 14~~, wherein said signal transduction involves activation MKPX, PTP4A1, PTPN7, FEM-2, DKFZP566K0524 or FLJ20313.

16. (original) An isolated nucleic acid comprising the sequence set forth in SEQ ID NOS: 1, 3, 5, 7, 9 or 11.

17. (currently amended) A method to treat a tumor comprising administering a therapeutic amount of a composition comprising:

a compound of the general formula $\alpha(P_z)$, wherein $\alpha(P_z)$ is one or more moieties which specifically binds to a human protein MKPX, PTP4A1, PTPN7, FEM-2, DKFZP566K0524 or FLJ20313, wherein the binding of $\alpha(P_z)$ alters the function of the human protein $\alpha(P_z)$ or wherein $\alpha(P_z)$ comprises ~~and C is~~ one or more cytotoxic moieties; and a pharmaceutically acceptable carrier.

18 – 27 (canceled)

28. (currently amended) A compound for the treatment of a tumor of the general formula $\alpha(P_z)G$, wherein $\alpha(P_z)$ is one or more moieties which specifically binds to human MKPX, PTP4A1, PTPN7, FEM-2, DKFZP566K0524 or FLJ20313 protein, and alters the function of the protein or comprises ~~G is~~ one or more cytotoxic moieties.

29-42 (canceled)

43. (original) A method for visualizing a tumor in a patient, the method comprising:

(a) administering to a patient an effective amount of a composition comprising:

a compound of the general formula $\alpha(P_z)I$, wherein $\alpha(P_z)$ is one or more moieties which specifically binds to a human MKPX, PTP4A1, PTPN7, FEM-2, DKFZP566K0524 or FLJ20313 protein, and I is one or more imaging moieties; and a pharmaceutically acceptable carrier; and (b) visualizing the imaging moieties of the compound.

44-59. (canceled)